CONTRIBUTIONS TO OUR KNOWLEDGE OF THE BRITISH BRACONIDÆ. No. 2.—MACROCENTRIDÆ, WITH DESCRIPTIONS OF TWO NEW SPECIES.

By G. T. Lyle, F.E.S.

(Concluded from p. 262.)

M. collaris (Spin.).*—Appears to be fairly common and generally distributed. Is easily distinguished from its near relatives by the second abcissa of the radius being much shorter than the first intercubital nervure. The terebra is the length of the abdomen. In eight females which I have examined I find the antennæ to have 32–33 joints, and two males have each 37 joints.

I have not seen the original description, having identified my specimens from the writings of Wesmael and Marshall.

Zele (Curtis).

Large insects; in fact, *Z. testaceator* is probably our largest British braconid. Solitary parasites of the larvæ of Lepidoptera.

The testaceous species bear a superficial resemblance to insects of the genera *Ophion* and *Paniscus* among the Ichneumons, and also to some of the Meteori; from the latter they may easily be distinguished by the sessile abdomen and by the neuration of the fore wings (see Entom. xlvii. 76, plate I. fig. 1).

These parasites leave their hosts when the latter are full-fed, so that in all the instances recorded their cocoons have been found underground within the cocoons or pupal chambers of the hosts.

When emerging from the cocoon the imago removes a cap from one end, but not so neatly as with the Meteori.

(6) 1. Radial areolet of the hind wings not geminated by a transverse nervure.
(5) 2. Large species expanding 17–22 mm.
(4) 3. Wings hyaline or yellowish hyaline, terebra surpassing the apex of the abdomen 1. *testaceator*, Curtis.
(3) 4. Wings somewhat clouded, terebra not surpassing the apex of the abdomen . 2. *infumator*, sp. nov.
(2) 5. Smaller species expanding 12–14 mm. 3. *chloropthalma*, Nees.
(1) 6. Radial areolet of hind wings geminated (*Homolobus*, Forster).
(8) 7. Colour rufo-testaceous . . 4. *geminator*, nom. nov.
(7) 8. Colour nigrescent . . . 5. *discolor*, Wesm.

Z. testaceator (Curtis).—Four records only can I find of the breeding of this species, and in every case from the larva of a *Noctua*. I have never bred or captured it myself, the only examples I possess being two ancient specimens which were given to me some years ago. Fortunately I have been able to inspect a fine series of nine in Morley's collection, and three in that of Col. Nurse. With one possible exception all the specimens I have examined have the costal cell rather shorter than the median, and the recurrent nervure rejected by a distance which is equal to or rather less than the length of the first abscissa of the radius (fig. 4). Wings yellowish hyaline. The upper surface of the abdomen is generally, though not always, fuscous.

---

* Spinola, Ins. Lig. ii. p. 140.

The cocoon I have not seen, and the only description I know of is that of Fitch (Entom. xiv. 143), who tells us that it is *thin*, smooth, and white.

Among Morley's insects are two females bred by Cockayne from larvæ of *Tæniocampa populeti* taken in Berkshire.

Z. infumator, sp. nov. (Fig. 2.)

Thorax, abdomen, and legs, including the hind tarsi, rufotestaceous; claws black, and also a black dot above the radices. Palpi pale testaceous; mandibles fuscous at the tips; antennæ testaceous, annulated, darker towards the apices, longer than the body in both sexes. Metathorax marked with a rather elaborate raised pattern, which, though often not so symmetrical as in the case figured (fig. 5) (taken from a specimen in my collection, No. 530), is always present in a more or less perfect condition. Wings dull hyaline, *apical half somewhat infumated*, costal cell as long as or slightly longer than the median. Costa, nervures, and stigma fuscous, *recurrent nervure rejected by a distance which is greater than the length of the first abscissa of the radius.* Radial areolet of the hind wings not geminated by a transverse nervure. Abdomen smooth, terebra not surpassing the anus. Length, 9–11 mm., expands 17–22 mm.

Described from thirteen males and eleven females.

Approaches *Z. testaceator* in size, but differs therefrom in having the terebra concealed, infumated wings, and a shorter first abscissa of the radius, &c.; from *Z. chloropthalma* it differs in size and also in the infumated wings, &c.

Larva dirty cream colour, showing under magnification irregular white speckles on the last six or seven segments, attenuate towards the head, parts of the mouth not or scarcely outlined.

The cocoon is *thick*, white, somewhat rough but not woolly, attenuated similarly at both extremities, and 10½ to 13 mm. in length; when exposed to damp it turns a brownish colour (fig. 9).

Very many times bred from larvæ of *Boarmia repandata* between May 4th and June 1st, from which host Major Robertson has also bred it at Chandler's Ford. The parasite larva leaves its host when the latter is full-fed and has retired below the ground for pupation, and there spins its cocoon.

Z. chloropthalma (Nees). *Rhogas chloropthalmus*, Nees, Mon. i. 202 = *Phylax chloropthalmus*, Wesm., Nouv. Mem. Ac. Brux., 1835, p. 162. Owing, no doubt, to an oversight this species has been confused by Marshall with another (see *Z. geminator*), and has apparently been overlooked in this country.

Wesmael says that, besides being much smaller, it differs from *Z. testaceator*:—"1. En ce que les tarses ne sont pas plus pâles que le reste des pieds; 2. le dos de l'abdomen du mâle est entièrement fauve testacé; 3. Tariére de la femelle dans l'etat de repos n'est pas saillante, parce qu'elle est trop courte pour dépasser l'éxtremité dorsale de l'abdomen."

Nees considered his *Rhogas chloropthalmus* to be the *Bracon chloropthalma* of Spinola, but, as Marshall remarks, this cannot be proved.*

Among Fitch's insects I found a female which agrees perfectly with the descriptions of Nees and Wesmael. It was bred by G. Elisha, July 17th, 1884, from a larva of *Depressaria alstrœmeriana*. The specimen is 7 mm. long and 12 mm. in expanse, wings hyaline, terebra concealed, recurrent nervure rejected by a distance equal to the length of the first abscissa of the radius, and the radial areolet of the hind wing not geminated by a transverse nervure.

Z. geminator (nom. nov.) = *Z. chloropthalmus*, Hal. Ent. Mag. iii. 142; Marsh, Trans. Entom. Soc. 1888, p. 199; Bignell, Trans. Dev. Ass. for Advan. Science, &c., 1901, p. 657; Morley, Entom. xl. p. 254.—In the Ent. Mag. for 1836 Haliday described a species under the name of *Z. chloropthalmus*, which he considered synonymous with *Rhogas chloropthalmus* of Nees.† He was at that time, as we know, unacquainted with the work of Wesmael, who, the year before, 1835, had described his *Phylax chloropthalmus* ‡ also as synonymous with the Neesian species. In Wesmael's description the radial areolet of the hind wing is given as *not* geminated, while Haliday is most emphatic in saying that it is divided by a transverse nervure. Therefore, it is very evident that the synonymy of either Wesmael or Haliday must be wrong. In the description of Nees, unfortunately, no mention is made of the neuration of the hind wing, but it is extremely unlikely that so careful an observer would have omitted to note such an important character as the gemination of the radial areolet, had it occurred in the insect he described. We may, I think, take it that *Rhogas chloropthalmus*, Nees = *Phylax chloropthalmus*, Wesm., which necessitates the bestowal of a new name on Haliday's insect. For this well-marked species I therefore suggest the name of *Zele geminator*, and subjoin a copy of Haliday's description:—

"Fem. præcedenti similis (*Z. testaceator*) statura tota gracilior; abdomen brevius, clavatum, minus compressum; aculeo ascendente, vix apicem abdominis superante; pedes graciliores; tarsi omnes concolores; alæ ampliores; anticarum stigma et areola radialis latiores; posticarum area radialis a branchiali remota, *et in 2 areolas partita*."

---

* Trans. Entom. Soc., 1888, part 3, p. 300.

† Nees, Mon., i. 202.

‡ Nouv. Mem. Ac. Brux., p. 162.

It seems strange that Marshall, when preparing his Monograph, should not have noticed the discrepancy between the descriptions of Wesmael and Haliday. The species appears to be scarce, the only specimen I have seen being in Morley's collection, a female which was captured by the late Rev. E. M. Blomfield at Guestling in 1889. This insect expands 16 mm., and agrees in every particular with Haliday's description, the radial areolet of the hind wing being very distinctly geminated by a transverse nervure.

Z. discolor (Wesmael). (Fig. 3.)—Strange to say the male of this species is unknown. Wesmael, the original describer, saw only three females; Bignell bred the same sex only; Morley's single specimen is a female, as are also all the many specimens I have bred.

A large and graceful insect, 6½ to 8 mm. in length, and expanding 15–20 mm. I possess a specimen which is but 5 mm. in length and expands only 12 mm.; this case, however, is quite exceptional, and may probably be attributed to malnutrition of the host. The wings are somewhat infumated, the apical halves more distinctly so, and noticeably iridescent. Marshall very correctly describes the cocoon as "elongate, oval, white, and thin, with a medial zone of a denser texture forming a white band." This medial band is scarcely visible when the cocoon is empty. The cocoon is much thinner and more shining than that of *Z. infumator*, 7½ to 11½ mm. in length (fig. 10). It is constructed underground.

Bred by me many times from larvæ of *Cabera pusaria* from July 27th to August 8th, and again from September 27th to October 10th; also frequently from larvæ of *Boarmia repandata* between May 5th and May 28th; and once from a larva of *Gonodontis bidentata*, August 18th, 1912.

In October, 1911, I took a small larva of *Boarmia repandata*, which, being kept in a warm cupboard, fed up, and when full grown produced a larva of this parasite on January 31st, 1912. From this I should judge that in the ordinary way the species passes the winter within the body of its host, either as an ovum or small larva.

NEW SPECIES OF GEOMETRIDÆ FROM FORMOSA.

By A. E. Wileman, F.E.S.

Semiothisa kanshireiensis, n. sp.

♀. Pale brown thickly sprinkled with dark brown and blackish; subbasal and medial lines blackish, each originating in a black spot on the costa, slightly curved, interrupted and edged with orange; postmedial line blackish, indented below costa, wavy towards dorsum,